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UF-178AXC2SERIAL NO.  
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APPLICANT(S): L. Curtis Hannah, Thomas W. Greene

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ARK	U1	6 0 1 3 8 6 1	1/00	Bird <i>et al.</i>	800	284	
ARK	U2	6 0 6 9 3 0 0	5/00	Hannah <i>et al.</i>	800	284	
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ARK	F1	9 4 1 1 5 2 0	5/26/94	WO			
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	F4	9 5 3 4 6 6 0	12/21/95	WO			
ARK	F5	9 8 2 2 6 0 1	5/28/98	WO			

## OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

ARK	R1	Anderson, <i>et al.</i> (1989) "The Encoded Primary Sequence of a Rice Seed ADP-glucose Pyrophosphorylase Subunit and its Homology to the Bacterial Enzyme" J. Biological Chemistry 264(21):12238-12242.
	R2	Anderson <i>et al.</i> (1991) "Molecular characterization of the gene encoding a rice endosperm-specific ADPglucose pyrophosphorylase subunit and its developmental pattern of transcription" Gene 97:199-205.
	R3	Badu-Apraku, B., R.B. Hunter, M. Tollenaar (1983) "Effect Of Temperature During Grain Filling On Whole Plant And Grain Yield In Maize ( <i>Zea mays</i> L.)" Can. J. Plant Sci. 63:357-363.
	R4	Ballicora <i>et al.</i> (1995) "Adenosine 5'-Diphosphate-Glucose Pyrophosphorylase from Potato Tuber" Plant Physiol. 109:245-251.
	R5	Chang, Jen-Hu (1981) "Corn Yield In Relation To Photoperiod, Night Temperature, And Solar Radiation" Agricultural Meteorology 24:253-262.
	R6	Charnng, Y.Y., Iglesias, A.A., Preiss, J. (1994) "Structure-Function Relationships of Cyanobacterial ADP-glucose Pyrophosphorylase" J. Biol. Chem. 269(39):24107-24113.
	R7	Cheikh, N. and R.J. Jones (1995) "Heat stress effects on sink activity of developing maize kernels grown in vitro" Physiologia Plantarum 95:59-66.
ARK	R8	Conroy, J.P., S. Seneweera, A.S. Basra, G. Rogers, B. Nissen-Wooler (1994) "Influence of Rising Atmospheric CO <sub>2</sub> Concentrations and Temperature on Growth Yield and Grain Quality of Cereal Crops" Aust. J. Plant Physiol. 21:741-758.

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ARK	R9	Copeland, Les, Jack Preiss (1981) "Purification of Spinach Leaf ADPglucose Pyrophosphorylase" Plant Physiol. 68:996-1001.
	R10	Denyer, K., C.M. Hylton, A.M. Smith (1994) "The Effect of High Temperature on Starch Synthesis and the Activity of Starch Synthase" Aust. J. Plant Physiol. 21:783-789.
	R11	Dickinson, David B., Jack Preiss (1969) "Presence of ADP-Glucose Pyrophosphorylase in Shrunken-2 and Brittle-2 Mutants of Maize Endosperm" Plant Physiol. 44:1058-1062.
	R12	Duke, Edwin R., Douglas C. Doehlert (1996) "Effects Of Heat Stress On Enzyme Activities And Transcript Levels In Developing Maize Kernels Grown In Culture" Environmental and Experimental Botany 36(2):199-208.
	R13	Giroux, Michael J. et al. (1996) "A single gene mutation that increases maize seed weight" Proc. Natl. Acad. Sci. USA 93:5824-5829.
	R14	Greene, Thomas W. et al. (1996) "Mutagenesis of the potato ADPglucose pyrophosphorylase and characterization of an allosteric mutant defective in 3-phosphoglycerate activation" Proc. Natl Acad. Sci. USA 93:1509-1513.
	R15	Greene, Thomas W., Ronald L. Woodbury, Thomas W. Okita (1996) "Aspartic Acid 413 Is Important for the Normal Allosteric Functioning of ADP-Glucose Pyrophosphorylase" Plant Physiol. 112:1315-1320.
	R16	Hannah, L. Curtis, Oliver E. Nelson, Jr. (1975) "Characterization of Adenosine Diphosphate Glucose Pyrophosphorylases from Developing Maize Seeds" Plant Physiol. 55:297-302.
	R17	Hannah, L. Curtis (1997) "Starch Synthesis in the Maize Seed" In: Cellular and Molecular Biology of Plant Seed Development, B.A. Larkins and I.K. Vasil (eds.), Kluwer Academic Publishers, printed in the Netherlands, pg. 375-405.
ARK	R18	Hannah, L.C., O.E. Nelson, Jr. (1976) "Characterization of ADP-Glucose Pyrophosphorylase from Shrunken-2 and Brittle-2 Mutants of Maize" Biochemical Genetics 14(7/8):547-560.

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ARK	R19	Hannah, L.C., D.M. Tuschall, R.J. Mans (1980) "Multiple Forms Of Maize Endosperm ADP-Glucose Pyrophosphorylase And Their Control By Shrunk-2 and Brittle-2" Genetics 95:961-970.
	R20	Hawker, J.S., C.F. Jenner (1993) "High Temperature Affects the Activity of Enzymes in the Committed Pathway of Starch Synthesis in Developing Wheat Endosperm" Aust. J. Plant Physiol. 20:197-209.
	R21	Iglesias <i>et al.</i> (1993) "Expression of the Potato Tuber ADP-glucose Pyrophosphorylase in <i>Escherichia coli</i> " J. of Biological Chemistry 268(2):1081-1086.
	R22	Jenner, C.F. (1994) "Starch Synthesis in the Kernel of Wheat Under High Temperature Conditions" Aust. J. Plant Physiol. 21:791-806.
	R23	Jenner, C.F., K. Denyer, J. Guerin (1995) "Thermal Characteristics of Soluble Starch Synthase from Wheat Endosperm" Aust. J. Plant Physiol. 22:703-709.
	R24	Jones, R.J., B.G. Gengenbach, V.B. Cardwell (1981) "Temperature Effects On In Vitro Kernel Development of Maize" Crop Science 21:761-766.
	R25	Jones, R.J., S. Ouattar, R.K. Crookston (1984) "Thermal Environment During Endosperm Cell Division And Grain Filling In Maize: Effects On Kernel Growth And Development In Vitro" Crop Science 24:133-137.
	R26	Keeling, P.L., P.J. Bacon, D.C. Holt (1993) "Elevated temperature reduces starch deposition in wheat endosperm by reducing the activity of soluble starch synthase" Planta 191:342-348.
	R27	Lafta, A.M., Lorenzen, J.H. (1995) "Effect of High Temperature on Plant Growth and Carbohydrate Metabolism in Potato" Plant Physiology 109:637-643.
	R28	Lin, Tsan-Piao, Timothy Caspar, Chris R. Somerville, Jack Preiss (1988) "A Starch Deficient Mutant of <i>Arabidopsis thaliana</i> with Low ADPglucose Pyrophosphorylase Activity Lacks One of the Two Subunits of the Enzyme" Plant Physiol. 88:1175-1181.
REV	R29	Morell, Matthew, Mark Bloom, Jack Preiss (1988) "Affinity Labeling of the Allosteric Activator Site(s) of Spinach Leaf ADP-glucose Pyrophosphorylase" J. Biological Chemistry 263(2):633-637.

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NR	R30	Nakata, Paul A., Thomas W. Greene, Joseph M. Anderson, Brian J. Smith-White, Thomas W. Okita, Jack Preiss (1991) "Comparison of the primary sequences of two potato tuber ADP-glucose pyrophosphorylase subunits" Plant Molecular Biology 17:1089-1093.
	R31	Okita, Thomas W., Paul A. Nakata, Joseph M. Anderson, Joseph Sowokinos, Matthew Morell, Jack Preiss (1990) "The Subunit Structure of Potato Tuber ADPglucose Pyrophosphorylase" Plant Physiol. 93:785-790.
	R32	Okita <i>et al.</i> (1996) "Engineering Plant Starches by the Generation of Modified Plant Biosynthetic Enzymes" In: Engineering Crops for Industrial End Uses, Shewry, P.R., Napier, J.A., and Davis, P., eds., Portland Press Ltd., London, pp. 1-18.
	R33	Olive, M.R., R.J. Ellis, W.W. Schuch (1989) "Isolation and nucleotide sequences of cDNA clones encoding ADP-glucose pyrophosphorylase polypeptides from wheat leaf and endosperm" J. Molecular Biology 12:525-538.
	R34	Ou-Lee, Tsai-Mei, Tim Lloyd Setter (1985) "Effect of Increased Temperature in Apical Regions of Maize Ears on Starch-Synthesis Enzymes and Accumulation of Sugars and Starch" Plant Physiol. 79:852-855
	R35	Preiss, J. and T. Romeo (1994) "Molecular Biology and Regulatory Aspects of Glycogen Biosynthesis in Bacteria" Progress in Nuc. Acid Res. and Mol Biol. 47:299-329.
	R36	Preiss, J. and M. Sivak (1996) "Starch synthesis in sinks and sources" In: Photoassimilate distribution in plants and crops: source-sink relationships, Zamski, E., ed., Marciel Dekker Inc. pp. 139-168.
	R37	Rijven, A.H.G.C. (1986) "Heat Inactivation of Starch Synthase in Wheat Endosperm Tissue" Plant Physiol. 81:448-453.
	R38	Shaw, Janine R. and L. Curtis Hannah (1992) "Genomic Nucleotide Sequence of a Wild-Type Shrunken-2 Allele of <i>Zea mays</i> " Plant Physiol. 98:1214-1216.
for	R39	Singletary, G.W., R. Banisadr, P.L. Keeling (1993) "Decreased Starch Synthesis In Heat Stressed Maize Kernels Results From Reduced ADPG-Pyrophosphorylase And Starch Synthase Activities" Plant Physiol. 102:6(suppl) abstract.

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R40	Tsai, C.Y., O.E. Nelson, Jr. (1966) "Starch-Deficient Maize Mutant Lacking Adenosine Diphosphate Glucose Pyrophosphorylase Activity" <i>Science</i> 151:341-343.
R41	Greene, Thomas W. <i>et al.</i> (1998) "Enhanced stability of maize endosperm ADP-glucose pyrophosphorylase is gained through mutants that alter subunit interactions" <i>Proc. Natl. Acad. Sci. USA</i> 95:13342-13347.
R42	Kim, C.H. <i>et al.</i> (1998) "Heat-resistant ADP-glucose pyrophosphorylase produced from <i>Thermas caldophilus</i> sp." <i>Korea Adv. Inst. Sci &amp; Technology</i> XP-002127965 (abstract only).
R43	Laughlin, Mary J. <i>et al.</i> (1998) "N- and C-terminal peptide sequences are essential for enzyme assembly, allosteric, and/or catalytic properties of ADP-glucose pyrophosphorylase" <i>The Plant Journal</i> 14(2):159-168.
R44	Bae, M.M., M. Giroux, L. Hannah (1990) "Cloning And Characterization Of The <i>Brittle-2</i> Gene Of Maize" <i>Maydica</i> 35:317-322.
R45	Bhave, Mrinal R., Susan Lawrence, Carolyn Barton, L. Curtis Hannah (1990) "Identification and Molecular Characterization of <i>Shrunken-2</i> cDNA Clones of Maize" <i>The Plant Cell</i> 2:581-588.
R46	Müller-Röber <i>et al.</i> (1990) "One of two different ADP-glucose pyrophosphorylase genes from potato responds strongly to elevated levels of sucrose" <i>Mol Gen Genet</i> 224:136-146.
R47	Singletary, George W., Roshie Banisadr, Peter L. Keeling (1994) "Heat Stress During Grain Filling in Maize: Effects on Carbohydrate Storage and Metabolism" <i>Aust. J. Plant Physiol.</i> 21:829-841.
R48	Sowokinos, Joseph R., Jack Preiss (1982) "Pyrophosphorylases in <i>Solanum tuberosum</i> " <i>Plant Physiol.</i> 69:1459-1466.
R49	Stark, David M., Kurt P. Timmerman, Gerard F. Barry, Jack Preiss, Ganesh M. Kishore (1992) "Regulation of the Amount of Starch in Plant Tissues by ADP Glucose Pyrophosphorylase" <i>Science</i> 258:287-292.
R50	Thompson, Louis M. (1975) "Weather Variability, Climatic Change, and Grain Production" <i>Science</i> 188:535-541.
R51	Thompson, Louis M. (1986) "Climatic Change, Weather Variability, and Corn Production" <i>Agron. J.</i> 78:649-653.
R52	Tollenaar, M., T.W. Bruulsema (1988) "Effects Of Temperature On Rate And Duration Of Kernel Dry Matter Accumulation Of Maize" <i>Can. J. Plant Sci.</i> 68:935-940.

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Arce	R53	Suzuki, David T. <i>et al.</i> (1989) "Mechanisms of Genetic Change 1: Gene Mutation" In <u>An Introduction to Genetic Analysis</u> , 4th edition, W. H. Freeman and Company, New York, pp 476-499.
	R54	Smith-White, Brian J. <i>et al.</i> (1992) "Comparison of Proteins of ADP-Glucose Pyrophosphorylase from Diverse Sources" <i>J. Mol. Evol.</i> 34:449-464.
	R55	Sweetlove, L. J. <i>et al.</i> (1996) "Starch Metabolism in Tubers of Transgenic Potato ( <i>Solanum tuberosum</i> ) with Increased ADPglucose Pyrophosphorylase" <i>Biochem. J.</i> 320:493-498.
	R56	Jensen, L. G. <i>et al.</i> (1996) "Transgenic Barley Expressing a Protein-Engineered, Thermostable (1,3-1,4)- $\beta$ -Glucanase During Germination" <i>Proc. Natl. Acad. Sci. USA</i> 93:3487-3491.
	R57	Greene, Thomas W. <i>et al.</i> (1998) "Generation of Up-regulated Allosteric Variants of Potato ADP-glucose Pyrophosphorylase by Reversion Genetics" <i>Proc. Natl. Acad. Sci. USA</i> 95:10322-10327.
	R58	Lazar, E. <i>et al.</i> (1998) "Transforming Growth Factor $\alpha$ : Mutation of Aspartic Acid 47 and Leucine 48 Results in Different Biological Activities" <i>Molecular and Cellular Biology</i> 8:1247-1252.
	R59	Broun, P. <i>et al.</i> (1998) "Catalytic Plasticity of Fatty Acid Modification Enzymes Underlying Chemical Diversity of Plant Lipids" <i>Science</i> 282:1315-1317.
	R60	Villand, P. <i>et al.</i> (1992) "ADP-glucose Pyrophosphorylase Large Subunit from Barley Endosperm" <i>Plant Mol. Biol.</i> , Accession No. P30524.
	R61	Bowie, James U. <i>et al.</i> (1990) "Deciphering the Message in Protein Sequences: Tolerance to Amino Acid Substitutions" <i>Science</i> 247:1306-1310.
	R62	Ainsworth, C. <i>et al.</i> (1995) "Adenosine Diphosphate Glucose Pyrophosphorylase Genes in Wheat: Differential Expression and Gene Mapping" <i>Planta</i> , Accession No. S60572.
	R63	Satozawa, T. <i>et al.</i> (1995), Accession No. T02965.
Arce	R64	Bhave, M. R. <i>et al.</i> (1990) "Identification and Molecular Characterization of shrunken-2 cDNA Clones of Maize" <i>Plant Cell</i> , Accession No. P55241.
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